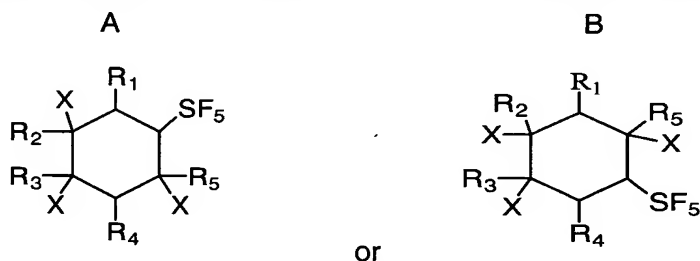
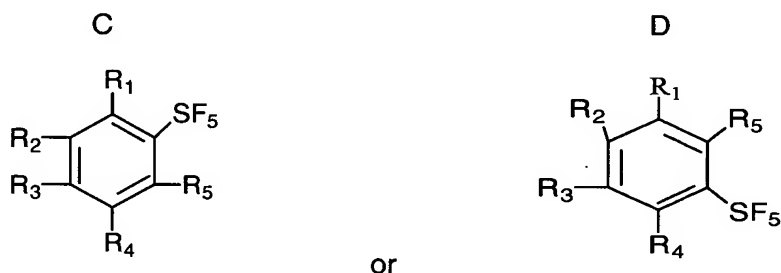


## CLAIMS

1. A process for making pentafluorosulfuranyl arylenes which comprises:  
 5 effecting dehydrohalogenation or dehydrogenation of a halogenated pentafluorosulfuranyl compound represented by either of the structures:



10 to form compounds represented by either of the structures:



wherein R<sub>1-5</sub> are H, halogen, e.g., Cl, or Br; C<sub>1-10</sub> alkyl, C<sub>1-10</sub> alkoxy, C<sub>1-10</sub> thionyl, C<sub>1-10</sub> alkyl ether, aryl and substituted aryl, thioether, sulfonyl, carboalkoxy, alkylamino, arylamino, alkylphosphoryl, alkylphosphonyl, arylphosphonyl, and arylphosphoryl etc and X is a halogen atom.

2. The process of Claim 1 wherein R<sub>1-5</sub> are H.

3 The process of Claim 2 wherein X is selected from the group consisting of Br and Cl or a mixture thereof.

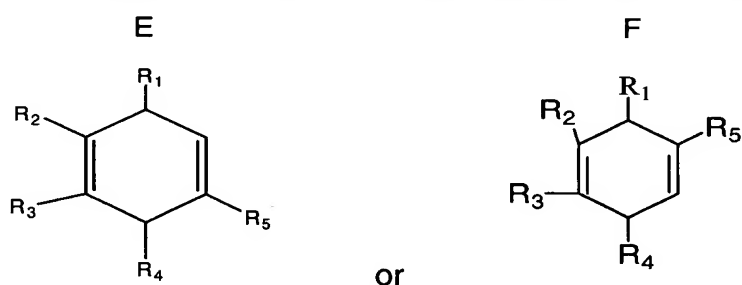
4. The process of Claim 3 wherein compounds C and D are formed by  
 25 effecting dehydrohalogenation of compounds represented by the structures A or B.

5. The process of Claim 4 wherein X is bromine.

6. The process of Claim 5 wherein dehydrohalogenation is effected by reaction of compounds represented by the structures represented by the structures A and B with powdered sodium hydroxide.

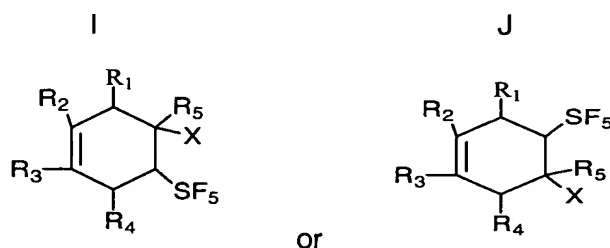
7. The process of Claim 1 wherein the halogenated pentafluorosulfuranyl compounds for forming the pentafluorosulfuranyl arylenes are formed by a two step process which comprises:

10 (a) reacting  $\text{SF}_5\text{X}$  with a compound represented by either of the structures:



leading to the formation of compounds represented by either of the structures:

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wherein  $\text{R}_{1-5}$  are H, halogen, e.g., Cl, or Br;  $\text{C}_{1-10}$  alkyl,  $\text{C}_{1-10}$  alkoxy,  $\text{C}_{1-10}$  thionyl,  $\text{C}_{1-10}$  alkyl ether, aryl and substituted aryl, thioether, sulfonyl, carboalkoxy, alkylamino, arylamino, alkylphosphoryl, alkylphosphonyl, arylphosphonyl, and arylphosphoryl, etc. and X is Br or Cl.

and then,

(b) halogenating the thus formed compounds represented by the structures I and J produced in step (a) by reaction with  $\text{Cl}_2$ ,  $\text{Br}_2$ , or  $\text{I}_2$  to form compounds represented by the structures A and B.

8. The process of Claim 7 wherein  $\text{R}_{1-5}$  are H.

9. The process of Claim 8 wherein step (a) is carried out using SF<sub>5</sub>Br as the reactant.

5 10. The process of Claim 9 wherein a free radical initiator is used to catalyze the reaction of SF<sub>5</sub>Br with compound represented by the structures E or F.

11. The process of Claim 10 wherein the free radical initiator is triethyl borane.

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12. The process of Claim 11 wherein halogenation in step (b) is carried out using Br<sub>2</sub> as the halogenating agent.

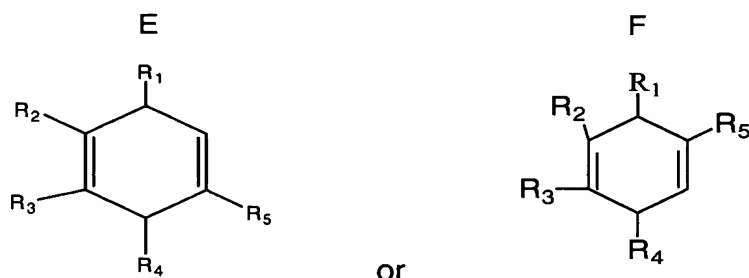
13. The process of Claim 12 wherein compounds represented by the structures C and D are formed by effecting dehydrohalogenation of compounds represented by the structures A and B by reaction with powdered sodium hydroxide.

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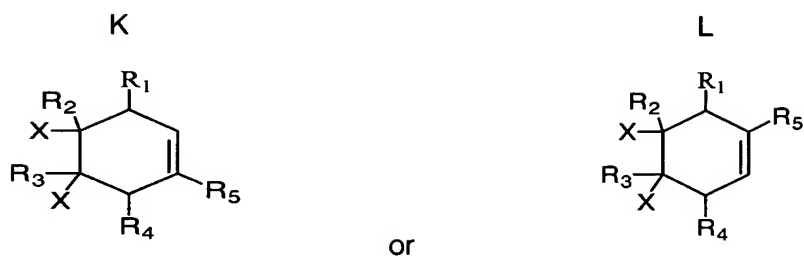
14. The process of Claim 1 wherein the halogenated pentafluorosulfuranyl compounds for forming the pentafluorosulfuranyl aryles are formed by a two step process which comprises:

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(a) halogenating a compound represented by the structures:



25 leading to the formation of compounds represented by the structures:



wherein  $R_{1-5}$  are H, halogen, e.g., Cl, or Br;  $C_{1-10}$  alkyl,  $C_{1-10}$  alkoxy,  $C_{1-10}$  thionyl,  $C_{1-10}$  alkyl ether, aryl and substituted aryl, thioether, sulfonyl, carboalkoxy, alkylamino, arylamino, alkylphosphoryl, alkylphosphonyl, arylphosphonyl, and arylphosphoryl, etc. and X is Br or Cl.

and then,

(b) reacting the thus formed compounds K and L produced in step (a) by reaction with  $SF_5X$  to produce compounds represented by the structures A or B.

15. The process of Claim 14 wherein  $R_{1-5}$  are H and X is Br.

16. The process of Claim 15 wherein step (a) is carried out using  $SF_5Br$  as the reactant and a free radical initiator is used to catalyze the reaction of  $SF_5Br$  with the compounds represented by the structures K or L.

17. The process of Claim 16 wherein the free radical initiator is triethyl borane.

18. The process of Claim 16 wherein C and D are formed by effecting dehydrohalogenation of compounds represented by the structures K and L by reaction with powdered sodium hydroxide.